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ORIGINAL ARTICLE

FREQUENCY AND RISK FACTORS OF DEPRESSION AMONG ELDERLY AT GERIATRIC CLUBS IN ZAGAZIG CITY.

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ABSTRACT

Background: Depression is one of most prevalent disabling health problems among elderly. The aim of the study was to improve quality of life of elderly and to assess frequency of depression among elderly (≥ 60) and identify its risk factors. **Methods:** A cross sectional study included 280 persons attending geriatric clubs in Zagazig City. Participants were asked about socio-demographic data, presence of chronic diseases, and participation in physical and social activities. Depression was measured by Geriatric Depression Scale short form (GDS-SF). **Results:** Prevalence of depression among the studied group was 66.1%, while 33.9% had no depression. According to severity, 61% of the depressed elderly had mild depression and 10% had severe depression. Results revealed that elderly belonging to the age group 70-75 years (63.9%), female sex (44.7%), urban residents (42.7), widowed (48.0%), and those with middle education (63.0%) were more exposed to depression than others. Also, elderly without past occupation (50.5%), those without current occupation (42.9%), and those of low social class (66.6%) had depression more than others. Lastly, elderly with minimal participation in physical activities (60.0%) and moderate participation in social (53.2%) activities, and those having chronic conditions were more prone to depression than others. **Conclusion:** Depression is an undiagnosed public health problem. It significantly increases with age, female sex, widowhood, urban residence, middle education, low socioeconomic level, past unemployment, and absence of current occupation. It is recommended to increase the awareness about the geriatric depression to allow early detection thus preventing its progression.

Key words: Depression, geriatric, assessment, frequency.

INTRODUCTION

As a consequence of graying of population, the care of older persons demands more attention and concerns about health, mental, social and financial resources. Older people often have age related diseases with complex multisystem problems and at increased risk for morbidity and mortality [1].

Depression is an important problem that may highly influence the quality of life of elderly people in different settings. The prevalence of depression in people aged 65 years and older may be as high as 40% in hospitalized and 30% in nursing home patients and 8%–15% in community settings. Studies of depressed elders indicate that they have comparable or poorer physical functioning than elders with

chronic medical conditions such as heart and lung diseases, arthritis and diabetes [2]. Important predictors for onset and persistence of late-life depression are female gender, low education, loss of partner, cognitive decline, somatic diseases, and functional impairment or disability [3]. Most clinicians will encounter older patients with depression in their practice, but although treatment is as effective for older patients as for younger adults, the condition is often under-recognized and under-treated [4]. Family physicians, as the ‘gate-way keepers’, are in an excellent position to intervene in late-life depression. It is mainly the family physician’s responsibility to detect and manage late-life depression [5].

Aim of the study was to improve the quality of life of elderly people through assessing the frequency of depression among elderly people attending geriatric clubs in Zagazig district.

SUBJECTS AND METHODS

Study design and setting: A cross sectional study was conducted in the two geriatric clubs in Zagazig city: Tahseen El-Seha and Al-Hokamaa.

Target population: Elderly persons with age of 60 years and older and with or without chronic medical condition. Persons with aphasia, deafness, or articulation disorders were excluded from the study.

Sample size: Assuming that the total number of elderly people in the two geriatric clubs in Zagazig city (Tahseen El Seha and Al Hokamaa) was 1850, prevalence of geriatric depression is 89%, so the sample size was 280 persons calculated using EPI INFO with power 80% and CI 95%.

Sampling technique: Cluster sampling was adopted for selection of elderly people. All attendants in the club were interviewed at the time of visit in both clubs.

Study tools: Two standardized questionnaires were used as the following: The socio-demographic status was measured using the socioeconomic scale developed and validated by Fahmy et al, [6] It includes the following eight domains with total score 48: Education and occupation of wife and husband, computer use, per capita income, family size, crowding index, and sewage and refuse

disposal. Other demographic data were obtained, including: marital status, residence, and currently working or not. Participants were asked about presence of chronic medical conditions and their types and also asked about their level of participation in physical (e.g. climbing stairs, cooking, dressing, bathing) and social (e.g. shopping, attending family gatherings) activities. The second questionnaire was the Geriatric Depression Scale (GDS): A short form (GDS- SF) developed by Sheikh and Yesavage [7] was used as a basic screening measure for depression. It is consisted of 15 questions requiring “yes” or “no” answers. Of the 15 items, 10 indicate the presence of depression when answered positively, while the rest (question numbers 1, 5, 7, 11, 13) indicate depression when answered negatively. The scale was translated into Arabic and validated by Wrobel and Farrag [8].

Study time: This study was carried out from the first of February 2019 to the end of August 2019.

Pilot study: Before starting to collect the final data, a pilot study was conducted on 10 % of the sample size. It showed that the questionnaires were clear and relevant. As there weren’t any changes conducted on the questionnaires, this sample was included in the study.

Field work:

- **Duration:** Three months (from the first of March 2019 to the end of May 2019). Each club was visited two times per week. Each visit lasted for three to four hours.
- **Activities:**
 - 1-Building initial rapport with all elderly who were included in this study.
 - 2-Taking an informed consent from each participant.
 - 3-Assessment of sociodemographic status for each participant. Time taken to fill this questionnaire was about 5 to 7 minutes.
 - 4-Assessment for presence of chronic medical conditions.
 - 5-Assessment of the level of depression for each participant using the Geriatric Depression Scale Short Form (GDS-SF). Time taken to fill this questionnaire was about 6 to 8 minutes.

Data management:

Scoring of social class: Social class was

classified according to Fahmy et al. [6] into low, middle, and high level depending on the score calculated (48): Low (<19.2), Middle (19.2-33.6), High (>33.6).

Scoring of depression: The total score is 15. The depression level was classified into normal (scores of 0–4); mild depression (scores of 5-8); moderate depression (scores of 9-11); and severe depression (scores of 12-15) [7].

Administrative and Ethical consideration: The work has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans. The study protocol was approved from the Ethical Committee at Faculty of Medicine Zagazig University and Institutional Review Board (IRB). An Official permission was obtained from the Family Medicine department at Faculty of Medicine Zagazig University. The necessary official permissions to carry out the study were obtained from the managers of the geriatric clubs. The objective of this study was explained to them to ensure their cooperation. An informed consent was obtained from all participants in this study.

Data analysis: The collected data were analyzed by computer using Statistical Package of Social Services version 24 (SPSS). Data were represented in tables and graphs. Continuous Quantitative variables e.g. categorical qualitative variables were expressed as absolute frequencies (number) & relative frequencies (percentage). Suitable statistical test of significance was used after checked for normality. The test of significance used is the Chi Square test. The results were considered statistically significant when the significant probability was less than 0.05 ($P < 0.05$). P -value < 0.001 was considered highly statistically significant (HS), and P -value ≥ 0.05 was considered statistically insignificant (NS).

RESULTS

This study included 280 older adults, 41% were from 60 years to 65 years old, while 23% of them were older than 75 years (**Table 1**). Among the studied group 29.6% of them were males, and 70.4% were females (**Table**

1). About 73% of the studied group were married, while 27% were widowed, no participant was divorced or separated. 61% were urban residents, and only 15% were currently working (**Table 1**). About 36% of the studied group were university educated while 32% were illiterate or can read and write. Regarding past occupation, about 62% had an occupation in the past and now receive pension. Only 6.8% of the studied elderly used computer lots of times (**Table 1**), and most of the studied elderly people had moderate socioeconomic status and high socioeconomic status (47.1% and 46.4 %) respectively (**Figure 1**).

Regarding the presence of chronic medical conditions, 22% of the studied group reported not having any chronic diseases, 54% had one disease only, 17% had two diseases, while 7% had more than two chronic conditions (**Figure 2**).

Regarding types of medical conditions, the majority of the studied group had diabetes and hypertension (49.8% and 40.6%) respectively, while 47 persons had arthritis (21.5%) (**Figure 3**).

Regarding participation in physical activities, about 38% reported having good participation, 57% had moderate participation, while 5% had minimal participation (**Figure 4**).

Regarding participation in social activities, about 52.5% reported having good participation, 44.3% had moderate participation, while 3.2% had minimal participation (**Figure 5**).

According to the Geriatric Depression Scale, this study shows that 66.1% of the study sample had depression, while 33.9% had no depression (**Figure 6**).

Among the depressed group, 61% had mild depression, 29% had moderate depression, while 10% had severe depression (**Figure 7**).

Table (2) shows that there was highly statistical association between mild depression and age group 70-75 (63.9%), female sex (44.7%), urban residents (42.7), middle education (preparatory/ secondary) (63.0%), low socioeconomic level (66.6%), unemployment in the past (50.5%), and absence of current occupation. Also,

moderate depression was highly statistically associated with widowed elderly (48.0%). Elderly of older age group are 2.50 times more likely to have depression (OR= 2.50, P <0.05). Female elders are 2.23 times more likely to develop depression (OR= 2.23, P <0.05). Widowed elderly are 8.82 times more likely to develop depression (OR= 8.82, P <0.05). Low educated elderly are 2.36 times more likely to have depression (OR= 2.36, P <0.05). Elderly who didn't have an occupation in the past and those who didn't work at the time of the study are 1.25 and 2.79 times more likely to develop depression respectively (**Table 2**).

Regarding the relation between depression and participation in physical activities, there was a highly statistical association between severe depression and minimal participation. Elderly with minimal participation in physical activities are 8.29 times more likely to have

depression (OR= 8.29, P <0.05) (**Table 3**).

Regarding the relation between depression and participation in social activities, there was a highly statistical association between mild depression and moderate participation. Elderly with moderate participation in social activities are 4.25 times more likely to have depression (OR= 4.25, P <0.05) (**Table 3**). **Table (3)** shows that mild depression was highly statistically associated with presence of one chronic medical condition (46.1%). Also, moderate depression was statistically associated with presence of two chronic conditions (42.5%). Elderly with chronic medical condition are 1.48 times more likely to have depression (OR= 1.48, P <0.05).

Table (4) by multivariate logistic regression shows that female gender and minimal participation in physical activities are risk factors for depression.

Table (1): Frequency distribution of demographic characteristics of the Studied elderly people (No=280).

Demographic characteristics	Variable	No. (280)	%
Age group	60	115	41.0
	65	65	23.2
	70	36	12.9
	≥ 75	64	22.9
Sex	Male	83	29.6
	Female	197	70.4
Marital status	Married	205	73.3
	Widowed	75	26.7
Residence	Urban	171	61.0
	Rural	109	39.0
Currently working	Yes	42	15.0
	No	238	85.0
Education of subject	Illiterate/read and write	90	32.1
	Literate certificate /Primary	27	9.6
	Preparatory	18	6.4
	Secondary	28	10.0
	University	102	36.4
	Postgraduate	15	5.4
Education of partner	Illiterate/read and write	81	28.9
	Literate certificate /Primary	8	2.9
	Preparatory	24	8.6
	Secondary	30	10.7
	University	134	47.9
	Postgraduate	3	1.0
Past occupation of subject	Yes	173	61.8
	No	107	38.2
Past occupation of partner	Yes	206	73.6

Demographic characteristics	Variable	No. (280)	%
Computer use	No	74	26.4
	Never	181	64.6
	Sometimes	80	28.6
	Lot of times	19	6.8
Per-capita income	Not enough + small loan	12	4.3
	Enough only	208	74.3
	Enough and saving	60	21.4
Number of family members	≥7	33	11.8
	6	29	10.4
	5	35	12.5
	<5	183	65.4
Crowding index	≥4	2	.7
	≥2-<4	60	21.4
	<2	218	77.9
Sewage /refuse disposal	yes	280	100.0

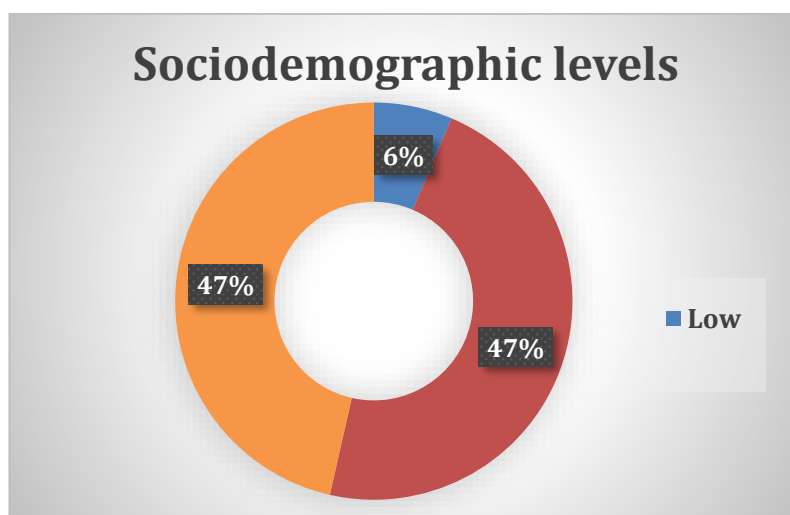


Figure (1): Sociodemographic status of the studied elderly people (No=280).

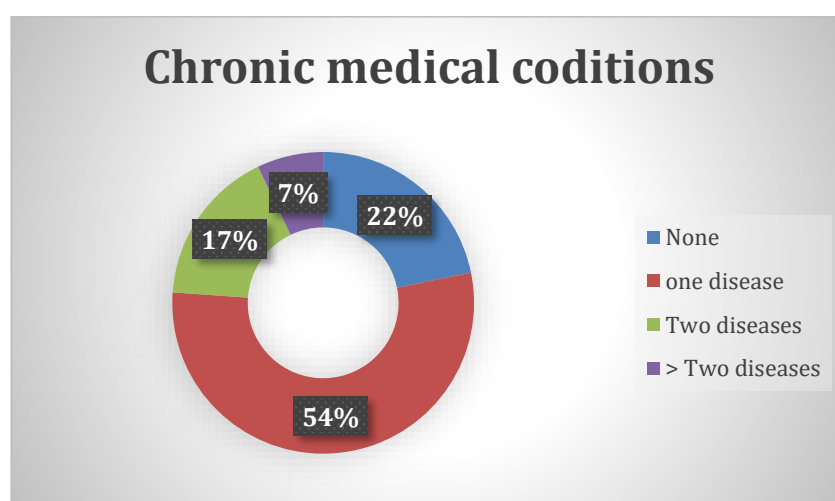


Figure (2): Pie diagram showing chronic medical conditions distribution among the studied elderly people (N=280).

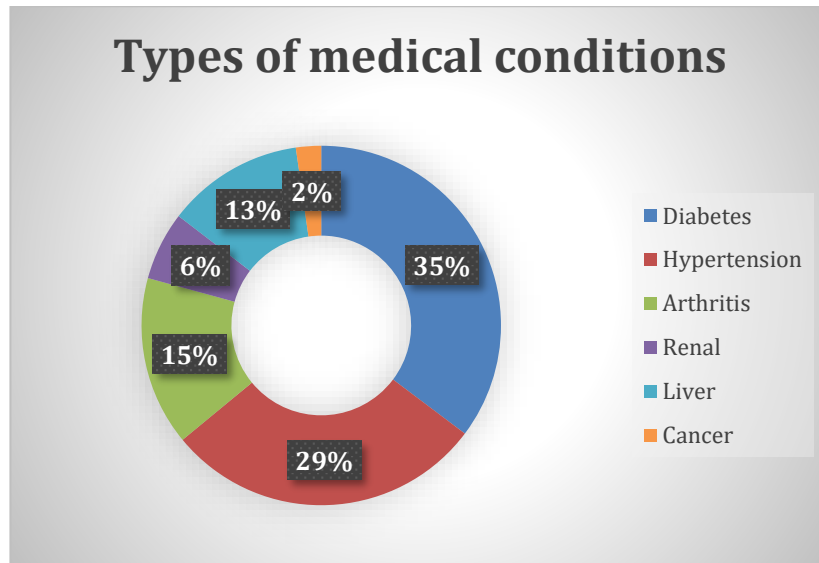


Figure (3): Types of chronic medical conditions among the studied elderly people (No=280).

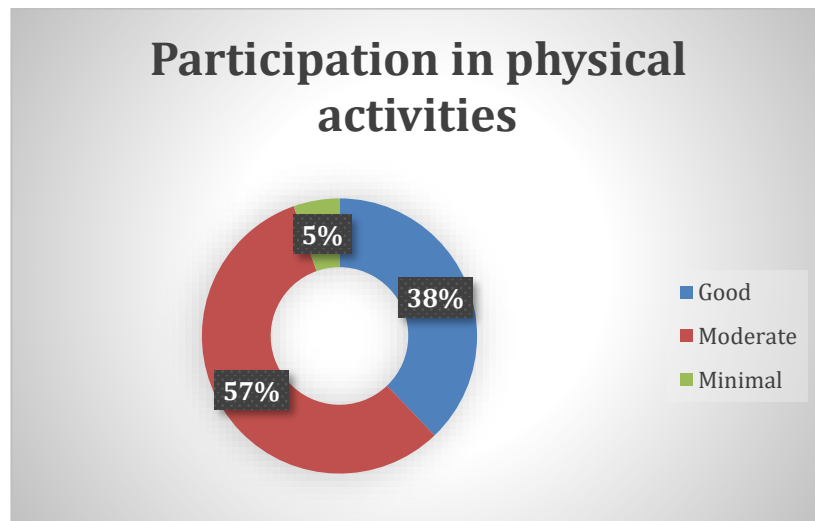


Figure (4): Participation in physical activities among the studied elderly people (No=280).

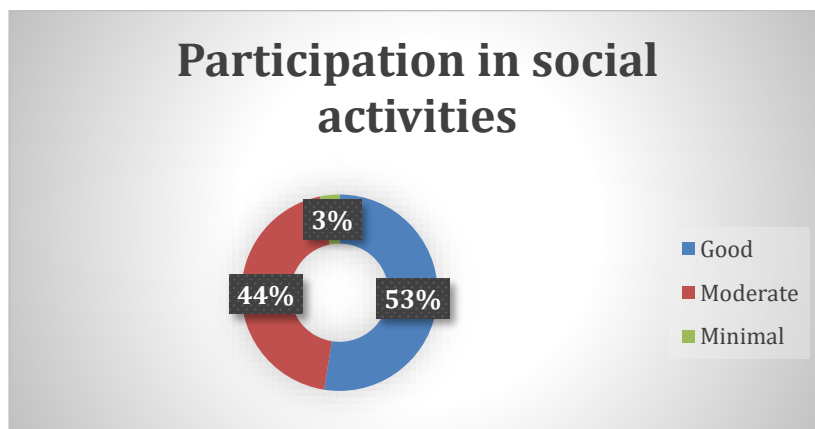
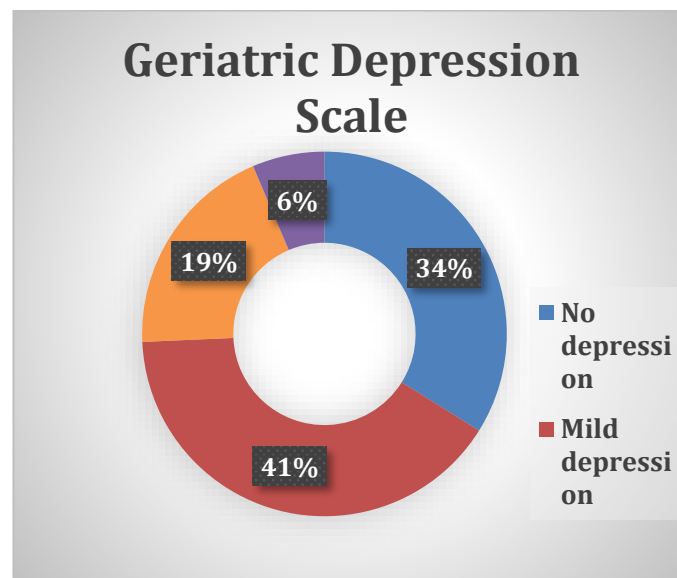


Figure (5): Participation in social activities among the studied elderly people (No=280).**Figure (6): Geriatric Depression Scale among the Studied elderly people (No=280).**

DISCUSSION

Depression among the elderly constitutes the most hideous of the diseases that they congregate and a major public health concern that attracts worldwide attention. Studying the prevalence of geriatric depression and its risk factors is crucial to determine the magnitude of the problem and pave the way for further studies and interventions to its management. This study included 280 older adults, most of them belonged to the age group from 60-65 years old, the majority of the studied sample were females (70.4%), about three fourth were married (73.3%), more than half of the elderly in this study (1%) were urban residents, and only 15% were currently working. The majority of the studied subjects were university educated (36%), more than half of the elderly had an occupation in the past and now receive pension (62%). Regarding social class, most of the studied subjects had moderate socioeconomic status (47.1%). Regarding the presence of chronic conditions, the majority of the elderly had one disease only (54%).

The current study revealed that the prevalence of depression among elderly in Zagazig City Geriatric Clubs was 66.1%. This may be due to presence of many chronic diseases among studied group and decreased participation in physical and social activities. This result was in consistence with Kim et al. who found that

the prevalence of depression among the elderly in Korea was 63% [9]. On the contrary, a lower prevalence (42.5%) was reported by Pramesona & Taneepanichskul [10], and by Pilania et al. (14.4%) in rural India [11]. A similar study in Zagazig city found that 46.6% of the elderly had depression [12]. On the other hand, Dessoki et al. found that depression among elder people in Beni Suef living in geriatric homes was more prevalent (89.7%) in comparison to those in geriatric clubs (56.7%) i.e. living with their families (with statistically significant difference) [13]. The explanation of this great variation in the prevalence of depression among the elderly may be the variation in the study design and sampling technique, socioeconomic-demographic factors and variation in the geriatric depression scales used.

In term of severity, it was found that 61% of the depressed elderly had mild depression, 29% had moderate depression, while 10% had severe depression on the geriatric Depression Scale. On the contrary, Abdo et al. found a higher percentage (24.4%) of severe depression among depressed group [12].

The current study found that the majority of the elderly belonging to age group 70-75 (63.9%) were statistically significant more prone to depression than others. This finding may be attributed to the fact that with

increasing age, older people experience a greater loss of physiological, psychological and social functioning and become increasingly prone to depression, or this may be due to feeling worthlessness and lower income in comparison to high cost of health care needs in this age. In agreement with El Kady & Ibrahim who found that highest rate of depression was among those aged 75+ years (75.0%) compared with younger age groups [2]. Similarly, Abdo et al. found that elderly people belonging to age group more than 70 years old had a significant risk more than two times of developing depression and this risk increases more with increasing age more than 75 to reach more than five times [12]. In contrast with El-Gilany et al. who concluded that elderly persons of 85 or more years old are less likely to be depressed than those of 60–75 years [14]. Such inconsistency in the literature can be attributed to differences in the methodology and diagnostic criteria used.

The present study found that depression was more prevalent among females, because the total number of elder women with depression was 141 out of 197 women included in the study with a percentage of 71.5%. In the same line with El Kady & Ibrahim and Wang et al. who found that women have a higher prevalence of geriatric depression than men [2][15]. Similarly, Abdo et al. found that females had significantly higher depression percentage (57.7%) than males (34.8%) [12]. Moreover, Guallar-Castillón et al. in Spain stated that depression prevalence was more among females than males (57% and 37.6%; respectively) [16]. This result can be attributed to the fact that females are exposed more to health and social problems and adverse life events due to longer life expectancy. The study in hand revealed that moderate depression was highly statistically associated with widowed elderly (48.0%). This finding can be attributed to the perceived loneliness sensation, loss of social support, and bereavement that aggravates feelings of sadness among such elders. This result was in consistence with Abdo et al. who found that elderly individuals who were exposed to death events among their relatives had more

than seven times risk for acquiring depression than those not exposed to the same events [12]. Similarly, El Kady & Ibrahim found that depression was more prevalent among widowed elders [2]. The study in hand shows that urban residents were statistically more prone to depression than rural ones (51.4%). This result may be due to the fact that elderly in rural areas are more likely to live with the extended family with intimate relationship. Rural people usually maintain stable social interaction. All these are potential countermeasures of depression, especially in elderly. This finding was in consistence with Pilania et al. who found a low prevalence of depression among rural Indian elderly [11]. Similarly, El-Gilany et al. found that depression was statistically significantly higher among urban residents [14].

This study found that mild depression was highly statistically associated with middle education (preparatory/ secondary) (63.0%). Similarly, in the study done by El Kady & Ibrahim it was found that depression was more prevalent among elders of lower educational status [2]. The lower level of education may reflect their lower socioeconomic status, which in turn may mean that they are exposed to more life stressors. In contrast to Abdo et al. who found that that the risk of depression increases with increasing educational level [12]. Conversely, the study done by Al-kholy et al. concluded that low education level was not a risk factor for geriatric depression [5].

It was found that severe depression was highly statistically associated with minimal participation in physical activities. This finding was in accordance with a clinical trial done by Onishi et al. that reported a positive correlation of depression with functional decline [17]. This finding was due to the fact that physical dependence brings about marked feelings of limited usefulness, loss of self-actualization, reliance on others and a general lack of mastery or sense of control.

This study revealed that moderate depression was statistically associated with presence of two chronic medical conditions (42.5%). In accordance with El Kady & Ibrahim who found that depression was more prevalent

among chronically ill elders, especially those with 2 or more diseases [2]. This result was in disagreement with Dessoki et al. and Al-kholy et al. who concluded that chronic medical conditions are not considered as a risk factor of depression among elderly [5,13]. The present study revealed that mild depression was highly statistically associated with low socioeconomic level (66.6%). In the same line with Abdo et al. who found that elderly with low socioeconomic status showed a higher percentage of depression (66.7%) [12]. Similarly, Murata et al. found that low socioeconomic status was significantly associated with depression [18]. This finding may be due to the fact that the poor have lesser access to social activity which is one of the major buffers for poor mental health as they are struggling to cope with their difficult life situations, so they don't share in recreational and social activities. Also, this finding can be attributed to bad living conditions resulting in worsening of general health status, in addition economic independence is considered as an important factor contributing to maintenance of mental health. By logistic regression, the current study revealed that female gender was a risk factor for geriatric depression as it was found that female sex was 5.4 times more likely to exhibit severe depression than male sex. This finding is consistent with numerous epidemiological studies showing that females have a higher prevalence of depression than males across generations and cultures [19, 20].

LIMITATIONS

This study was limited by involving only elderly people in elderly clubs, excluding elders from institutions and the community. Other limitations include study design (cross-sectional design), which does not allow determination of direction of causality despite the presence of associations.

CONCLUSION

Depression is an undiagnosed public health problem. It significantly increases with age, female sex, widowhood, middle education, low socioeconomic level, and unemployment in the past. Absence of depression was statistically associated with rural residents, and presence of current occupation. It is

recommended to increase the awareness about the problem of geriatric depression to allow early detection thus preventing its progression.

RECOMMENDATIONS

Increasing the role of geriatric medicine in primary health care system or at least extending training the physician on diagnosis of psychiatric health problem mainly depression due to its high prevalence nowadays.

Conflict of interest:

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

Financial disclosure:

Non declared

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Supplementary Tables & Figures

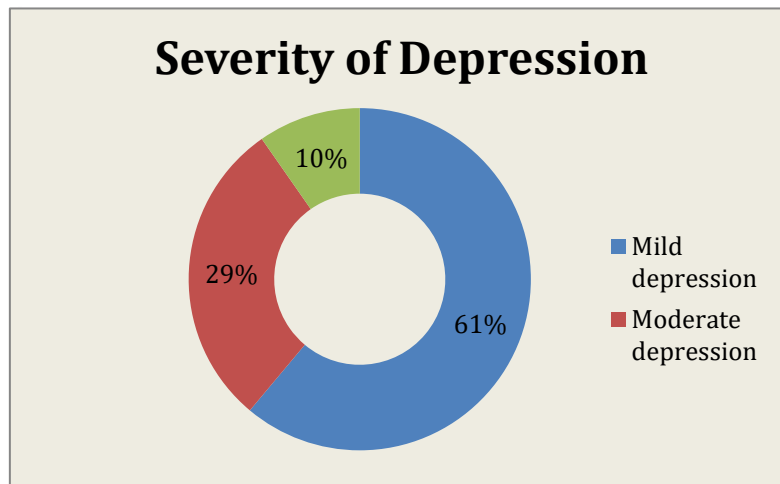


Figure (7): Severity of depression according to Geriatric Depression Scale (No=185).

Table (2): Depression in relation to sociodemographic characteristics among the studied elderly people (No=280).

Variable	Geriatric Depression Scale								Chi-square test χ^2	p-value	OR 95% CI
	No Depression (N=95)		Mild depression (N=113)		Moderate depression (N=54)		Severe depression (N=18)				
	No.	%	No.	%	No.	%	No.	%			
Age group											
• 60	53	46.1	43	37.4	19	16.5	0	0.0	58.10	<0.001* (HS)	2.50 1.5-4.2
• 65	28	43.1	23	35.4	12	18.5	2	3.0			
• 70	3	8.3	23	63.9	8	22.2	2	5.6			
• ≥ 75	11	17.2	24	37.5	15	23.4	14	21.9			
Sex											
• Male	39	47	25	30.1	11	13.3	8	9.6	13.11	0.004*	2.23

Variable	Geriatric Depression Scale								Chi-square test χ^2	p-value	OR 95% CI
	No Depression (N=95)		Mild depression (N=113)		Moderate depression (N=54)		Severe depression (N=18)				
	No.	%	No.	%	No.	%	No.	%			
• Female	56	28.4	88	44.7	43	21.8	10	5.1		(S)	1.3-3.8
Marital status											
• Married	89	43.4	92	44.8	18	8.8	6	3.0	82.57	<0.001** (HS)	8.82 3.6-21.2
• Widowed	6	8.0	21	28.0	36	48.0	12	16.0			
Residence											
• Urban	39	22.7	73	42.7	46	27	13	7.6	30.75	<0.001** (HS)	0.27 0.16-0.46
• Rural	56	51.4	40	36.7	8	7.3	5	4.6			
Education											
• Illiterate/ Iry school	53	45.3	61	52.1	3	2.6	0	0.0	94.51	<0.001** (HS)	2.36 1.4-3.9
• Prep./ 2ry	11	24.0	29	63.0	3	6.5	3	6.5			
• University/ Postgraduate	31	26.5	23	19.7	48	41.0	15	12.8			
Socioeconomic level											
• Low	3	16.7	12	66.6	3	16.7	0	0.0	25.35	<0.001* (HS)	0.36 0.1-1.3
• Moderate	34	25.8	54	40.9	28	21.2	16	12.1			
• High level	58	44.6	47	36.2	23	17.7	2	1.5			
Past occupation											
• Yes	62	35.8	59	34.1	34	19.7	18	10.4	16.03	<0.001* (HS)	1.25 0.74-2.09
• No	33	30.8	54	50.5	20	18.7	0	0.0			
Current occupation											
• Yes	23	54.8	11	26.2	5	11.9	3	7.1	10.21	0.017* (S)	2.79 1.4-5.4
• No	72	30.3	102	42.9	49	20.5	15	6.3			

*P-value <0.05 is significant

N.B.

- P-value <0.05 is significant
- S: Significant
- HS: Highly significant
- Iry: primary

- *Prep.: preparatory*
- *2ry: secondary*

Table (3): Depression in relation to participation in physical and social activities and chronic medical conditions among the studied elderly people (No=280).

Variable	Geriatric Depression Scale								Chi-square test X^2	p-value	OR 95% CI
	No Depression (N=95)		Mild depression (N=113)		Moderate depression (N=54)		Severe depression (N=18)				
	No.	%	No.	%	No.	%	No.	%			
Participation in physical activities											
Good participation	47	44.3	37	34.9	22	20.8	0	0.0	86.81	<0.001* (HS)	8.29 1.07-63.8
Moderate participation	48	30.2	73	45.9	29	18.2	9	5.7			
Minimal participation	0	0.0	3	20.0	3	20.0	9	60.0			
Participation in social activities											
Good participation	64	43.5	44	29.9	32	21.8	7	4.8	24.66	<0.001* (HS)	4.25 0.52-34.5
Moderate participation	30	24.2	66	53.2	19	15.3	9	7.3			
Minimal participation	1	11.1	3	33.3	3	33.3	2	22.3			
Chronic medical conditions											
• None	25	41.0	24	39.3	11	18.0	1	1.7	77.63	<0.001* (HS)	1.48 0.82 - 2.65
• 1	63	41.4	70	46.1	16	10.5	3	2.0			
• 2	6	12.8	14	29.8	20	42.5	7	14.9			
• >2	1	5.0	5	25.0	7	35.0	7	35.0			

N.B.

- *P-value <0.05 is significant*
- *HS: Highly significant*

Table (4): Logistic regression of severe depression depending on presence of risk factors among the studied group: -

Risk factors	B coefficient t	S.E.	P-value	Exp(B)	95% C.I. for EXP(B)	
					Lower	Lower
Older age	.101	.053	.054	1.107	.998	1.227
Female sex	1.692	.716	.018*	5.433	1.335	22.113
Low Social class	-18.597	8818.06 2	.998	.000	.000	.
High social class	.539	.976	.581	1.714	.253	11.599
Moderate participation in physical activities	-20.392	3648.29 2	.996	.000	.000	.
Minimal participation in physical activities	-2.722	.756	.000*	.066	.015	.290

$R^2 = 0.52$

Chi-square test for model coefficient =61.80, P-value=0.000*

Variable(s) entered on equation: age, sex, social class, participation in physical activities

*Statistical significance